



Red Pea Bush, *Bossiaea rupicola*

METAMORPHOSIS

AUSTRALIA

Magazine of the Butterfly & Other Invertebrates Club

ISSUE NO: 92

DATE: MARCH 2019
Price \$6.00

ISSN: 1839-9819
<http://www.boic.org.au>

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PLANNING AND ORGANIZATION MEETINGS

A quarterly meeting is scheduled in order to plan club activities and the magazine.
See BOIC Programme.

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Membership fees are \$30 for individuals, schools, and organizations.

AIMS OF THE ORGANIZATION

- To establish a network of people growing butterfly host plants;
- To hold information meetings about invertebrates;
- To organize excursions around the theme of invertebrates e.g. butterflies, native bees, ants, dragonflies, beetles, freshwater habitats, and others;
- To promote the conservation of the invertebrate habitat;
- To promote the keeping of invertebrates as alternative pets;
- To promote research into invertebrates;
- To encourage the construction of invertebrate friendly habitats in urban areas.

MAGAZINE DEADLINES

If you wish to submit an item for publication the following deadlines apply:

March issue – February 1st June issue – May 1st

March issue – February 1st June issue – May 1st

September issue – August 1st December issue – November 1st

September issue – August 1st December issue – November 1st

All articles should be submitted directly to the Editor daphne.bowden1@bigpond.com

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COVER PHOTO

Red Pea Bush, *Bossiaea rupicola* – Photo Aub Podlich



FROM THE PRESIDENT

The Imperial Hairstreak (*Jalmenus evagoras*) stars in this edition of the magazine and we thank Aub Podlich, John Moss, Wesley Jenkinson and Peter Hendry for putting together their detailed observations supported by an interesting array of photographs. Even though the interaction of some butterfly species with ants is well known, I always find this interaction fascinating.

As you will be well aware by now, I frequently invite you to share your observations with others through this magazine. Well, I do so again! It has been suggested by some that we have “too many” articles about butterflies. I am not sure we can have “too many” but we would really welcome stories – even snippets of information – about the wide range of other invertebrates. It is your contributions that make our magazine a success.

Congratulations and thanks to Rog Standen whose report on the Yellow Spotted Epicoma is an outstanding example of close, detailed and prolonged observation and recording. I am sure that this is a “world first” on this particular moth.

In this edition, you will read an account by Chris Sanderson of an exciting and challenging project that has the potential to involve all of us.

One of the club’s aims is to assist and promote the planting of butterfly hosts plants. One way that we do this is through the publication of our host plant book with the updated fourth edition about to go to print. In September each year we have plants for sale at the Native Plants Queensland Spring Flower Show and never have an oversupply of stock. If you are able to supply seeds for propagation, would like seeds for your own use or can donate tube-stock please contact me.

The club’s Annual General Meeting will be held on April 13th next and we invite you to attend. As we would welcome new committee members, please feel free to nominate a candidate. Best wishes Ross

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***Bossiaea rupicola* a new host plant for the Imperial Hairstreak butterfly – Aub Podlich**

It is not exactly common to see the Imperial Hairstreak (*Jalmenus evagoras*) around my home town Boonah, located in the Scenic Rim south-west of Brisbane. Within the last ten years, small breeding populations called demes have only twice been noted on wattles at The Head and on a property at White Swamp, both some distance from town. Five or six years ago I photographed a single individual in the National Park at Mt French.



Imperial Hairstreak (*Jalmenus evagoras*)

It was with surprised delight then, that my wife and I encountered a breeding flutter of this communal butterfly on Mt French on 21st January this year, when there had been next to no rainfall for over a month, and we were enduring a heat wave. To compound the surprise was the unexpected food plant on which the hairstreaks were breeding, as evidenced by a small fluttering flock of eight butterflies, some caterpillars, chrysalises, and a seething host of attendant ants.

Imperial Hairstreaks are listed as breeding on over 25 different species of wattles all in the legume family Mimosaceae. These were breeding successfully on two large shrubs, Red Pea Bush or *Bossiaea rupicola*, which grows up to three metres tall and is in the related legume family Fabaceae. It looks magnificent on Mt French in spring, with its plum-coloured, or plum and yellow pea-flowers in profusion.

John Moss and Wes Jenkinson tell me that this is the first recorded sighting of Imperial Hairstreaks breeding on anything but wattles, with the single exceptional record of a colony found on a pendulous mistletoe in the grounds of Griffith University two decades ago. In that case, John recalled that the mistletoe was low to the ground and just above the nest of a colony of meat ants (*Iridomyrmex* species). More significant was the fact that there were many wattles in the immediate surrounds.



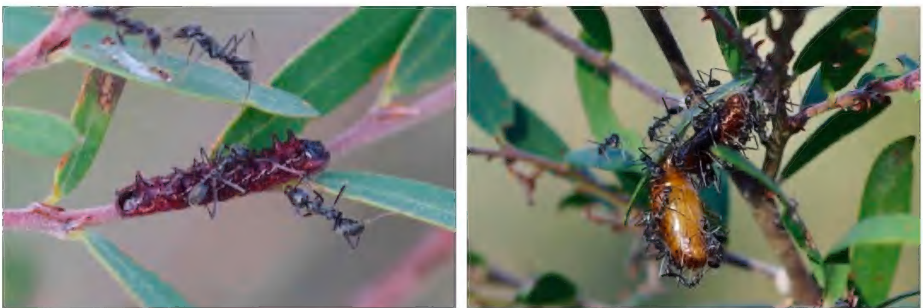
Red Pea Bush, *Bossiaea rupicola*
Photo Glenn Leiper



Both these factors would no doubt have influenced excited egg-laden female hairstreaks to readily oviposit, especially if (as was likely) there were waiting/foraging ants on the mistletoe.

I revisited the mountain before sunrise for the next three mornings, to photograph the butterflies before the harsh summer sun drained the colours. Successful revisiting of the site of breeding hairstreaks is possible because of their habit of “site fidelity”, that is, of fluttering round the host plants for most of their brief life-span of 4-24 days. They may move no further than short distances from the host plant and sometimes the following generation is found breeding in the same place a season later. Males flutter ceaselessly around the host plant, mating immediately with females as they emerge from the chrysalises, wings still droopy and crinkled. I have seen Caper Whites doing the same thing! I hope to keep an eye on this colony to see if usage of the *Bossiaea* at this site continues over the next three seasons and especially into the following summer.

In common with many butterflies in the Lycaenidae, Imperial Hairstreaks will not normally breed where their particular attendant ants, usually one of the several species groups of ants in the genus *Iridomyrmex*, are absent. These ants, which were swarming over the caterpillars and chrysalises on the two shrubs on Mt French, tend and protect the larvae in return for sweet food secretions made up of carbohydrates and amino acids which the larvae manufacture from nitrogen-producing wattles, and obviously after this new discovery, from *Bossiaea rupicola*.



Imperial Hairstreak larva and pupa with attendant ants on *Bossiaea rupicola*

In ant exclusion trials conducted by N.E.Pierce, R.L.Kitching and others, it was demonstrated that larvae of Imperial Hairstreaks deprived of attendant ants were so intensely parasitized by wasps and flies and plundered by spiders, robber flies, dragonflies and mantises, that it is unlikely that any individuals would have survived.





Imperial Hairstreak (*Jalmenus evagoras*) on
Bossiaea rupicola

There are 12 Australian butterfly species popularly called hairstreaks, 11 of them in the genus *Jalmenus*, of which seven can be found in Queensland. The name “hairstreak” is European in origin, and one explanation is that it was applied to certain butterflies in the wider lycaenid family with small twisted hair-like “tails” (like little girls’ “pigtails”!) attached to the ends of their hind wings.

BTW: there appears to be a clever function for these appendages; it is thought that a combination of these tails (resembling antennae), and nearby red and black spots (resembling eyes), confuse predators as to which end of the insect is the (vulnerable) head, resulting in *tails* being snapped off instead of heads!

Another explanation is that the “hair-streak” refers to the fine linear markings on the underside of both sets of wings. Imperial Hairstreaks and a number of other species of *Jalmenus* (but not all) have these types of markings. There is a similar explanation for the names of our five “pencilled blue” species, being the fine/faint penciling like markings on the wing undersides.

Photos, except where previously credited, Aub Podlich

References:

- Eastwood, R. 1999. An aberrant food-plant record for *Jalmenus evagoras* (Donovan)(Lepidoptera: Lycaenidae). *Australian Entomologist* vol 26 pt 1 pp 13-14.
Pierce, N.E. & Nash, D.R., 1999. The Imperial Blue *Jalmenus evagoras* (Lycaenidae) in *Biology of Australian Butterflies*. CSIRO Publishing Collingwood, Victoria.

ITEMS OF INTEREST

The following article is reprinted from the Butterfly and Other Invertebrates Club Newsletter #43 December 2006

Common Imperial Hairstreak (*Jalmenus evagoras evagoras*)

After the Club’s April 2006 AGM held at Downfall Creek Bushland Centre in McDowall, those members still present went for a walk along some of the paved tracks through the bushland. One of the fascinating finds was a small colony of larvae of the Common Imperial Hairstreak (*Jalmenus evagoras*) being attended by ants. I did



not know it at the time but this was a prelude for what I was going to see the following weekend.

Easter, April 14-17, saw me take a return trip to my bush block west of Bundaberg. On Friday afternoon I met with one of my sons and decided to walk up one of the steep ridges on the block. From here I decided to follow a spur to see if I could find a specimen of *Secamone elliptica* (Corky Milk Vine), seen on a previous trip about two years before. I was hoping to collect some seed, as this is the host for the Blue Tiger butterfly (*Tirumala hamata*). On reaching the eastern fence line I realized I had not found it, and one of the reasons was the increase in density of the wattles in the area since my last visit. Using my GPS I set a course for camp, wishing I had used it previously to record the position of the *S. elliptica*.

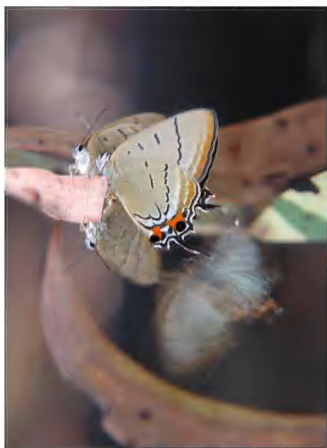
While climbing out of a gully I noticed a large lycaenid flying around some wattle. Then there were 2, 3, 4! It being late in the day I decided to return to camp. The sighting was near the main track we had used to reach the ridge earlier. This meant I could easily drive back in the morning.



Common Imperial Hairstreak
(*Jalmenus evagoras*)
Actual size – Male 32 mm Female 37mm



Ants attending larvae and pupae



Mating frenzy

Back at camp, a check of Michael Braby's "The Complete Field Guide to Australian Butterflies" convinced me that I had seen the Common Imperial Hairstreak.

The following morning I drove back up the track to where I had crossed it the previous evening. I saw one flying around a wattle beside the track and, as before, then there were 2, 3, 4, more! But wait! There were 4 or 5 flying around the next wattle and then one up the track, another one down the track and a further one on the other side of the track. They were everywhere!

I was standing in about a 10-acre area of wattle with both *Acacia falcata* and *A. leiocalyx* present. There were probably hundreds of Hairstreaks possibly even

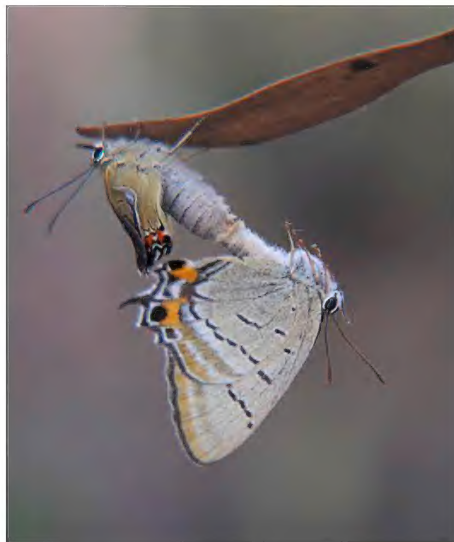


thousands! Then I noticed the larvae and ants. The ants were in a frenzy, running all over the plants attending the active larvae as well as pre-pupal larvae and pupae. These ants (*Iridomyrmex* sp.) are attracted to the larvae, which, like many lycaenids, have glands which secrete a fluid reward for the caretaker ants. I could not understand why the ants were also attending the pupae with no possible reward. Even pre-pupal larvae probably no longer secrete these fluids.

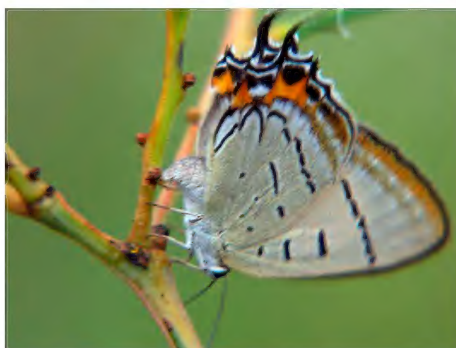
The ants were not the only creatures in a frenzy. The butterflies themselves were in a frenzy. I did not observe them feeding and in fact, there were no suitable nectar sources nearby. Females emerging from their pupae were mating before their wings could expand. There was vigorous competition between males as to who would mate. Even after they had paired, I witnessed several males flying in unison attempting to separate the pair. Males were inspecting pre-emergent female pupae, and I presumed they were waiting for the females to emerge. Some were set upon by the ants but seemed not to be too bothered, unless the ants persisted. Then the males would fly off only to land nearby and then slowly re-approach.

Some further observations should be made:

- One notable aspect of this colony was that it was on the border of the known northern limit for this sub-species.
- While both species of wattle, *Acacia falcata* and *A. leiocalyx*, were used as hosts, the former seemed to be favoured.
- Looking at the overall picture, many of the wattles had no larvae or ants.
- Some pupae were in clusters of up to 4. Some were in webbing while others had no webbing.
- I observed butterflies rubbing their abdomens along terminal branches. They were possibly depositing a scent to make the ants aware that the trees were being used for oviposition.



Mating with newly emerged female



Laying a scent trail



- It appears that they emerged mainly in the morning.
- A visit at night showed that the ants were in attendance 24 hours a day.
- One night a cricket was observed running up the stem of a wattle, only to be met by a delegation of five ants and quickly repelled.

My brother and I, along with John Moss, had been through this area on several occasions and had not seen this colony. I was later to find out why. A subsequent visit in mid-June revealed nothing, not even an ant. It was dry and the wattles did not look their best. In early September, I was accompanied by John Moss and Ross Kendall. This time there were a few ants found on the wattles, but no butterflies or larvae. A close inspection revealed several clusters of spent eggs but few viable eggs. There were several old pupal cases of parasitic braconid wasps. A few wasps were observed in the area. In early November, John again accompanied me and my brother to the site. A few ants were found, but no larvae or butterflies were seen. However, back at camp, a single Hairstreak was observed on the wing. Thus it would appear that their seasonal occurrence is irregular.

Photos Peter Hendry

Life history notes on the White-brand Grass-skipper, *Toxidia rietmanni rietmanni* (Semper, [1879]) Lepidoptera: Hesperiiidae – Wesley Jenkinson



This endemic skipper is recognised as two subspecies in Australia. The northern subspecies (*T. rietmanni parasema*) is encountered in the wet tropics from Kuranda south to the Paluma Range (Braby, 2000). The southern subspecies (*T. rietmanni rietmanni*) is known from central coastal and sub-coastal Queensland to southern New South Wales including areas along the Great Dividing Range.

The species is generally localised and is chiefly located in wetter environment along margins and creek-lines of rainforest, wet sclerophyll forest and dry vine forest where host grasses are established.

Adults can be confused with many of the 'brown' skippers, however the males can be identified by the long narrow white brand on the forewing. The females are rather similar to several other *Toxidia* species, and where in doubt, if recording species lists, it is preferable to retain voucher specimens for correct identification.



Individual specimens of *T. r. rietmanni* show slight variation in the size of the pale-yellow spots on the forewing. A male bred from north-eastern New South Wales [pictured above] is missing the three subapical spots on the forewing similar to part of the description used to separate the northern subspecies from the southern subspecies in Braby 2000.



Adult flight is very rapid. While basking they typically settle in a 'skipper' pose with their wings open, facing towards the sun, revealing the upper side markings [see photo adjacent of resting female]. Males can be observed strongly defending open glades (where the host grasses are present), chasing off other males and typically returning to the same perching spot on low shrubs and vegetation up to several meters high. The females also frequent the same areas looking for suitable ovipositing sites. The

males do not appear to hilltop and both sexes are readily attracted to a wide range of small native and exotic flowers. Whilst feeding the wings may be open or closed. During cloudy conditions, they settle on vegetation with the wings closed.

Wingspans for the pictured adult specimens are: males 24mm and females 25mm.



Toxida rietmanni rietmanni (White-brand Grass-skipper)

Images left to right: male, female, male underside, female underside

A female collected in January 2018 from a private property in the montane region of North-eastern New South Wales laid several eggs in captivity. The eggs were laid singly on the grasses supplied and some were laid on the container sides. Egg laying was not observed. These eggs were successfully raised in captivity through to adults on two species of soft grasses, Green Couch (*Cynodon dactylon*) and *Oplismenus hirtellus* subspecies *imbecillis* (now *O. imbecillis*) with the latter reported as being a possible host grass by K.L. Dunn (Braby 2000). *O. imbecillis* can now be confirmed as a host.

Females have been observed ovipositing on or near other grasses *Entolasia marginata*, *Ottochloa gracillima* and *Panicum pygmaeum*. These may prove to be the native host grasses but need to be confirmed (Braby 2000 and Moss 2019).



In natural conditions females have a preference to oviposit in a cool, protected, dappled sunlit area, below trees and shrubs.



Freshly laid egg



2-day old egg

The eggs were 0.9mm wide x 0.7mm high, dome-shaped, 15-17 longitudinal ribs, whitish green when laid, with pinkish red apex and mottled lateral band and markings appearing after 2 days.

The first instar larvae emerged at dawn and soon consumed their eggshells. Two different type shelters were formed on the two different grass



Shelter created using *O. imbecillus* (above)

Shelter created using *C. dactylon* (right)



species. The larvae on the narrower leafed *C. dactylon* created a shelter by folding a leaf in half and stitching it to another leaf to form a cylinder. When resting in this style shelter the head was facing downwards. The shelter created on the second grass type *O. imbecillus* (having a wider leaf) was formed by stitching a silken thread across a leaf and tensioning the silk to roll the leaf edges in towards the centre. The shelters were then later lined with silk and were slightly longer than the length of the larva. The early instar larvae consumed small sections from the outer edge of the leaf, towards the opening of the shelter at dusk. Each larva created several shelters as they grew in size.

The larvae completed five instars and attained a length of 17mm.



1st instar larva



2nd instar larva



3rd instar larva



5th instar head capsule



4th instar larva



5th instar larva





Pupal shelter



Pupa

Pupae, measuring 14mm in length, were located in the final shelter and were attached with silk by the cremaster.

The first adult to emerge had an egg duration of 9 days, larval duration was 84 days while pupal duration was 14 days with the final adult emerging 19 days later.



Within the new boundary of the Scenic Rim Regional Shire south of Brisbane, I have records of adults from November through to March. K.L. Dunn has recorded the adults from September to April in the Brisbane area (Braby 2000). It is possible adults may also be on the wing from September until April in this region. There are probably two generations per year in the Scenic Rim region.

Acknowledgements: I would again like to thank John Moss for helpful comments on the manuscript.

Photos Wesley Jenkinson

References:

- Braby, M.F., 2000. *Butterflies of Australia – Their Identification, Biology and Distribution*. vol 1. CSIRO Publishing, Melbourne.
- Moss, J.T., 2019. *Butterfly Host Plants of South-east Queensland and northern New South Wales*. 4th (rev) ed. Butterfly & other Invertebrates Club.

Additional life history notes on **Clearwing Swallowtail, *Cressida cressida* (Fabricius, 1775) Lepidoptera: Papilionidae** (Issue #91 December 2018)–
Wesley Jenkinson

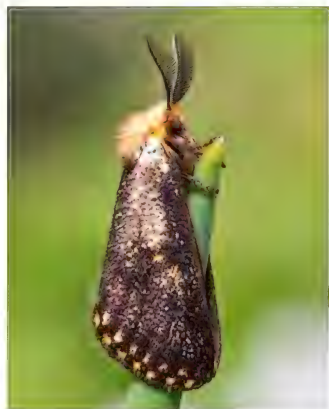
Adults are not normally fast fliers, however, if disturbed they are capable of rapid speed. Males patrol open areas in search of newly emerged females where the host plants are growing. While defending their territories, males often chase one another, with their wingtips sometimes colliding, creating an audible rustling sound. Females



can be observed flying just above the ground, searching for suitable host vines for egg laying. They are very easy to approach while ovipositing. Flight occurs in both sunny and warm cloudy conditions and when resting during the day the wings are closed. Adults of both sexes feed from small native and exotic flowers. Both sexes, particularly males can be regularly observed feeding high up on eucalypt and melaleuca blossom. Males do not appear to hilltop but are strongly territorial and will vigorously chase other butterfly species away, so maybe not the best species option for those trying to establish a butterfly garden in a small area. Be prepared to get ambushed by the males if they appear!

Yellow-spotted Epicoma - pheromones in action – Rog Standen

While walking to the front of our garden in Mt Eliza on the Mornington Peninsula in southern Victoria on December 21, I noticed a number of two-toned brown/yellow moths flying around the dwarf callistemon bushes “Little John” that in the past have been invaded by a mass of larvae of the Yellow-spotted Epicoma (*Epicoma contritis*) moth. This alerted me to see if these moths were the same ones as I was concerned it might have meant another invasion. So, I watched them for a while.



Male Yellow-spotted Epicoma
(*Epicoma contritis*)

For the first time in my life, I was watching the well-known feature of moth reproduction where the female releases pheromones and the males pick these up with their extraordinary feathered antennae. In the case of the Yellow-spotted Epicoma, both male and females have feathery antennae, with the male's being slightly larger. Several of the moths, flying with a slightly jerky flight, seemed to have a roughly circular to oval path around the row of their target shrubs. There were at least five moths in flight at any one time and each one that I saw land was a male. Did these moths all just appear from a recent emerging or was it the presence of a female that lured all the available males from around the area to that one spot?

On closer inspection of one of the bushes, two moths were seen near the ground and as I moved closer, one fell to the ground in what appeared to be a death play act. It was a female and she lay there, not moving, with her wings held



Female ‘playing dead’



together over her back. I could pick her up without any response and after laying on my hand for a while she started to move and regained her normal stature, so I placed her atop one of the bushes. Following that there were still several males doing their erratic flight around the area, but one or two were making smaller and smaller circuits, occasionally swerving very close to the female. This continued until one got within about 30cm of the female and after another couple of quick circuits, landed on the female and immediately commenced mating. This was 10.05am. There was a slight breeze blowing at the time.



Mating pair with female on the left



Mating pair with the second male arriving too late

Shortly after this (10.08am), a second male narrowed in on the female and attempted to mate with her, but was clearly too late and after a brief attempt to disrupt the mating pair, it flew away. There were still males flying around in search of females at least an hour later, but I saw no other females. This was perhaps not surprising, as once mating commenced, they were hard to see as they virtually remained in the same place, joined and not moving.



Female with first egg sac

Being interested in the complete life-cycle of these insects, and previously having raised adult moths from final stage larvae found on these same bushes, I was hopeful of seeing what the eggs looked like. The pair remained together for the rest of the day. Why some moth species remain joined for such long periods I do not know. However, overnight they became separated at some stage because in the morning there was a raft of egg mass laid in the container I

had placed them in for observation. The egg mass was 15mm long by 10mm wide in an 'L' shape and was 4mm deep. It was pale cream coloured and was covered in, and seemed to contain, a mass of short fibres. The female had lost considerable size in her abdomen, clearly from expressing the egg mass. A second, smaller egg mass was laid



on the second night. I then wondered how long it may take for these eggs to hatch. At that stage, I had no way of telling how many eggs had been laid.

On January 15 (24 days post egg-laying), dark lines appeared across the container which held the egg masses and on closer inspection I realised that the eggs had hatched. All the tiny first instar larvae were crawling across the sides and lid of the container in a procession action. Each tiny larva (about 1.7mm long) was head to tail with those in front and behind. There were several lines across the container and I counted them all to a total of 439 larvae. As they were all alive and well I assumed they must have just hatched in the last day or two making it about three weeks between laying and hatching in the warmth of summer.



Larvae (first instar)



Larvae (6 days old – second instar?)

The newly hatched larvae were pale yellow with a black head and were covered in bristles along the whole body. On January 21, the larvae appeared to have darkened to a greener shade and they have a black central band along their back.



Larvae (late instar)



Final instar pupating in a cocoon

They continued to feed throughout the day, forming a line side-by-side and eating their way along the leaf together. They remove the surface of the leaf and do not eat the whole leaf. This differs from the final instar larvae that were consuming the whole leaf when they ate. Those final instar larvae appeared all black so it will be interesting



to follow the colour change if I can. Don Herbison-Evans (on the Coffs harbour Butterfly House website, <http://lepidoptera.butterflyhouse.com.au/noto/contristis.html>) describes the late stage larvae as being "...dark grey and hairy. Its head capsule is white with red sides bordered with black. The true legs are red and the prolegs are orange. There is also an orange lateral line along each side, with a row of orange spots above it. The body is speckled with yellow dots."

Interestingly, when I raised the adults from the final instar larvae found decimating the callistemon bushes in late 2017, only two of the seven pupae I observed hatched adult moths. The others had been parasitised by a tiny wasp (as yet unidentified beyond being a Brachonid). Those larvae were feeding individually at night and retreated to the leaf mulch at the base of the plants to hide during the day. Due to my absence for six weeks at the time, the date of pupating was not noted, but there were 40 days after my return before the pupae hatched adult moths.



Parasitised pupa



Brachonid wasp (3mm) – parasitiser of *Epicoma* moths

The Atlas of Living Australia

(<https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd:taxon:2797eeb1-2ba7-424b-835a-357521235c3f>) shows the distribution of *Epicoma contristis* to mainly stretch from Queensland, through NSW to Victoria and Tasmania, with a single record in each of SA and WA.

Photos Rog Standen

UNDER THE MICROSCOPE



Are you able to identify this image?

See page 23 for the answer.

Photo Trevor Lambkin



MISTLETOE PROFILE

Extract from **The Mistletoes of Sub-tropical Queensland, New South Wales and Victoria** by *John T. Moss* and *Ross Kendall*

Wilga Jointed Mistletoe

Korthalsella taenioides forma taenioides (synonym
Korthalsella rubra subsp. *geigericola*)

Description

This is a yellowish-green apparently leafless, jointed, segmented-stem mistletoe. Compared to the previous taxon, it has slightly narrower cladodes with a raised central vein only and with symmetrical branching from multiple nodes along the stem. Unlike the branches in the previous taxon, these are at 90° to the main stem (see Figure 14 on page 16). Tiny flowers are in clusters at each node, held on the shoulders of the proximal cladode. The central part of the node is devoid of flowers. Following flowering, tiny oblong yellow fruit appear.



Habitat and Host Plants

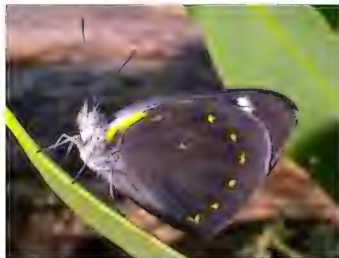
This mistletoe occurs in the Brigalow Belt in southern Queensland to north-western Victoria mainly on Wilga (*Geijera parviflora*) associated with Brigalow (*Acacia harpophylla*) on black clay soils or as an element of dry vine or “softwood” scrubs. In the latter situation we have found it parasitising False Sandalwood (*Eremophila mitchellii*), Native Pomegranate (*Capparis mitchellii*), Small-leaved Croton (*Croton phebaloides*), Red-fruited Olive Plum (*Elaeodendron australe*) and Wallaby Bush (*Acalypha eremorum*).

Butterflies and Moths

- Yellow-spotted Jezebel (*Delias nysa*) [This butterfly is not as common in the drier western districts where Wilga occurs, although it reappears after good rains.]

Notes

This mistletoe would appear to have as much in common with the following taxon as with the previous one. This taxon and the following were once classified as subspecies of *Korthalsella rubra* (see note with that taxon).



Delias nysa female (Kelvyn Dunn)





Korthalsella taenioides forma *taenioides* plant (John Moss)



Korthalsella taenioides forma
taenioides cladodes (Ross Kendall)



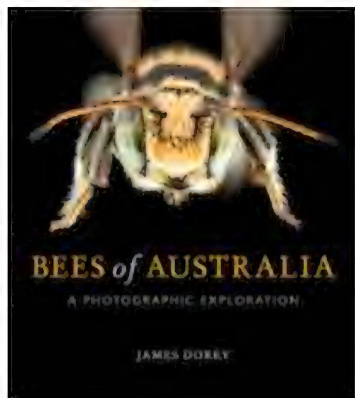
Korthalsella taenioides forma
taenioides plant (Ross Kendall)



BOOK REVIEW

Bees of Australia a photographic exploration by James Dorey –

Reviewed by Martyn Robinson



This is a very beautiful book but a difficult one to classify. Is it a coffee table book as it has beautifully detailed images of native bees albeit mostly non-living individuals? Is it a field guide as the detailed images are shown from several angles allowing an observer to compare features on the image, and details in the notes, with a specimen they might wish to identify? Is it a general book about native bees in Australia as it covers each state with an overview and covers a selection of representative species with a closing information box at the end of the chapter detailing aspects of bee biology and ecology?

Perhaps it is best to describe it as a combination of all of these types of books and a bit more. As mentioned the bee images - although of dead specimens for the most part - are superbly detailed and show many of the features which would be impossible to photograph on a living bee. The information that goes with each specimen usually includes a summary of what might be known about the species or some interesting behavioural aspect - where this is lacking it is probably because too little is known at all about the species in question, as many of our bee species have unknown biologies and life histories.

The main chapters - apart from the useful introduction and ending chapter on the importance of museums - run state by state and are useful in providing some detail as to where to look, although - once again - with so little known much more detail would be required to make this an exhaustive list. Similarly, the bees represented are just that - some representative species showing the biodiversity of each state rather than the impossible task of detailing every known species, and the keen observer will no doubt find a number of species not represented in this book. This isn't the purpose of the book anyway. It is more something to encourage the reader to go out and look more closely, and perhaps get inspired and involved in collecting specimens and sending in images to natural history museums to further the knowledge of our native bees. Citizen scientists all over the world are already making valuable contributions in this way and Australian native bees are a field that could certainly benefit with the help of readers of this book.

Criticisms? Well, I find the little silhouetted 'actual size' images in the lower right-hand corner of each species page rarely work in most books where I have seen them



used and they are often inaccurate. Please bring back the good old average size in millimeters? Also, I understand that these were the specimens that the author was able to collect and photograph but in many cases that resulted in only one sex being shown and an image, or even a description of the missing sex, would be useful. Nevertheless, anyone interested in native bees will be interested in this book and I would recommend it.

Ed. The book is available from CSIRO Publishing for \$49.99

IN THE GARDEN

with *Peter Hendry*

On the 15th December 2018, I found a mating pair of *Grammodes justa* (Walker, 1858) (imaged) in the garden. At first they were flying joined together, then eventually settled on the concrete path where I was able to capture the image. Though not uncommon, this was my first daytime encounter with this species. It is a frequent visitor to light traps in many of the areas I have trapped.

In *Metamorphosis Australia* issue number 62 September 2011, I wrote an article “The Genus *Grammodes* (Lepidoptera: Noctuidae; Catocalinae)”. Since that time there have been many taxonomic changes within the Noctuidae. The Noctuidae have been split into two families the Noctuidae and Erebidae and the subfamily

Catocalinae has been reduced to a tribe, Catocalini. The genus *Grammodes* is now placed in the family Erebidae subfamily Erebinae tribe Ophiuini.



Mating pair of *Grammodes justa*
Photo Peter Hendry

In *Metamorphosis Australia* issue number 70 September 2013, Graham McDonald published an article titled “Life history notes on the noctuid moth *Grammodes justa* (Walker, 1858). Lepidoptera: Noctuidae: Catocalinae” where probably for the first time *Sauropus albiflorus* was shown to be a host plant for *Grammodes justa*. I have grown *Sauropus albiflorus* in the garden for many years. At the time I first purchased it, as pointed out in Graham’s article, it was known as *Phyllanthus albiflorus*. Though my original specimen has long gone, due to the construction of a walking bridge now also gone, it self-seeded and I now have several plants throughout the garden.



The Butterflies Australia Project: citizen science saving butterflies

Chris Sanderson

Australia has over four hundred species of butterflies, but despite being active during the day, brightly coloured, and very noticeable when in flight, we still know very little about many of them. We currently have no national database for information on butterflies. For some species, we don't know the full extent of their range (where they occur), while for others we don't know even their basic life history, such as what their host plant is, or what their caterpillars look like. Without this knowledge, we risk butterfly species going extinct before we realise they are in trouble.

Another problem Australia faces is the lack of people out there looking for butterflies who would recognise when a species is out of place. There are many species of invertebrates, including butterflies, that would be highly damaging to agriculture or to the Australian environment if they established here. One example is the Banana Skipper, *Erionota thrax*, a major banana crop pest, which is already in nearby Papua New Guinea. Early detection of species like this is essential to have any chance of limiting damage caused, however the chances of this happening in such a large country are small with so few trained observers out there to look.

This is why we have created the Butterflies Australia project – an exciting initiative to collect butterfly sightings data for the whole of Australia. It's a citizen science project, meaning anyone can participate. We want sightings of butterflies from anywhere within Australia and Australian territories. Whether it's your backyard, local park, or a remote national park rarely visited by people, your data will greatly increase our knowledge of butterfly populations and movements.

The data you submit will be verified by experts and will end up in the Atlas of Living Australia, a CSIRO initiative for storing data related to the natural world. The resulting database of Australian butterfly sightings will be the first of its kind, a national, scientifically-verified set of sightings records that can be used for research and conservation of butterflies.

We haven't yet set the official project launch date, but it will likely be in October 2019. This will involve the launch of an iPhone and Android smartphone app which will allow you to record butterfly sightings and will also include a field guide. We will also have a website that will allow you to record sightings and explore the database to find lists of butterflies in your local area or locations that specific species might occur. In the meantime, you can sign up to our Facebook group (<https://www.facebook.com/australianbutterflyconservation/>) or join our mailing list (<https://mailchi.mp/e9cc5f6f5ec0/ausbutterflies>). You can also email me at australianbutterflies@gmail.com.





This image of a Bronze Flat was taken with a mobile phone. Even poorer quality images taken on a phone will be very useful for the project to help our experts validate sightings.



One major benefit of this project will be gaining a better understanding of how butterflies aggregate and migrate seasonally, like these Blue Tiger butterflies on Brampton Island.

We look forward to working with you to learn more about Australia's beautiful butterflies.
Photos Chris Sanderson

ERRATA

Ed.: In issue #91 December 2018, Life history notes on the Small Dusky-blue, *Candalides erinus* by Wesley Jenkinson, I duplicated the pinned image of the female underside. It should have appeared as follows. My apologies Wes.



Candalides erinus erinus (Small Dusky-blue)

Images left to right: male, female, male underside, female underside

YOU ASKED

Judy Ronlund asks "What am I?"

And Tobias Smith answers

"This is an *Amegilla* bee (the same group as blue banded bees), *Amegilla aeruginosa*. A very nice bee! It is a solitary bee that nests in the ground, just like blue banded bees."

www.BeeAwareBrisbane.org



An email from Frank Pierce jmandfp@bigpond.com
I refer you to my record of *Saroba albopunctata* in Cooktown, at
<http://www.bowerbird.org.au/observations/83135> .

Don Herbison-Evans has now confirmed the ID at
<http://lepidoptera.butterflyhouse.com.au/acon/albopunctata.html> .

I have not been able to find any references to records of this species in Australia.

Don has suggested that I ask BOIC if anyone knows if it has been found in Australia before?

Ed.: Please contact Frank if you can assist.

UNDER THE MICROSCOPE



Papilio amynthor amphiaras (male upperside),
endemic to Norfolk Island. The adults have very
distinctive white bars on the forewings, unlike any
other Australian Papilionidae.
Photo Trevor Lambkin

BUTTERFLY AND OTHER INVERTEBRATES CLUB PROGRAMME

Annual General Meeting

What? After the President's Annual Report, the election of office bearers will take place.
We welcome members to contribute to discussion. The meeting will be followed by
a talk on Fire Ants by Austin McLennan.

When? **Saturday 13th April 2019**, commencing at 10 am. Austin will begin his talk after
the formal meeting.

Where? Karawatha Discovery Centre, 149 Acacia Road, Karawatha

What to bring? Enthusiasm is welcome. Morning tea will be provided.

If attending, please respond to: Dawn Franzmann (ph 3325 3573; 0419 786 369 email
secretaryboic@gmail.com)

Planning and General Meeting

What? Our quarterly planning meetings are informative and interesting and we welcome
members to contribute to discussion. The meeting will be followed by a talk by Don
Sands titled "Fire and Insect Interactions".

When? **Saturday 11th May 2019**, commencing at 10 am. Don will begin his talk at
11am.

Where? The Hut Environmental & Community Association (THECA), 47 Fleming Road,
CHAPEL HILL

What to bring? Enthusiasm is welcome. Morning tea will be provided.

If attending, please respond to Dawn Franzmann (ph 3325 3573; 0419 786 369 or
email secretaryboic@gmail.com)



DISCLAIMER

The magazine seeks to be as scientifically accurate as possible but the views, opinions, and observations expressed are those of the authors. The magazine is a platform for people, both amateur and professional, to express their views and observations about invertebrates. These are not necessarily those of the BOIC. The manuscripts are submitted for comment to entomologists or people working in the area of the topic being discussed. If inaccuracies have inadvertently occurred and are brought to our attention we will seek to correct them in future editions. The Editor reserves the right to refuse to print any matter which is unsuitable, inappropriate or objectionable and to make nomenclature changes as appropriate.

ACKNOWLEDGMENTS

Producing this magazine is done with the efforts of:

- Those members who have sent in letters and articles
- Aub Podlich who provided the cover photo
- Daphne Bowden who works on layout, production, and distribution
- John Moss, Kelvyn Dunn and Ross Kendall for scientific referencing and proof-reading of various articles in this issue of the magazine

ARE YOU A MEMBER?

Please check your mailing label for the date your membership is due for renewal. If your membership is due, please renew as soon as possible. **Annual membership fees are \$30.00 for individuals, schools, and organizations.** If you wish to pay electronically, the following information will assist you: BSB: **484-799**, Account No: **001227191**, Account name: **BOIC**, Bank: **Suncorp**, Reference: your membership number and surname e.g. **234 Roberts**.

Butterfly and Other Invertebrates Club Inc.
PO Box 2113
RUNCORN Q. 4113

Next Club event: Annual General Meeting, Saturday, 13th April 2019,
commencing at 10 am – see Club Programme for details.

